

## CLAIMS

1. Transmitter for Free Space Optical transmission systems, the transmitter including: at least one convergent lens having a corresponding focal point located at a focal distance ( $f$ ) from the convergent lens along an optical axis; and at least one source of light situated behind the lens in order to produce a beam of light carrying a signal to be transmitted on air, the source being situated at a source distance ( $f_1$ ) from the lens, characterised in that it also includes means for changing the source distance ( $f_1$ ) for changing the angle of divergence ( $\alpha$ ) of the beam of light in a corresponding manner.

2. Transmitter according to claim 1, characterised in that said means for changing the source distance ( $f_1$ ) include means capable of reducing the source distance ( $f_1$ ) and of increasing in a corresponding manner the angle of divergence of the beam and means capable of increasing the source distance ( $f_1$ ) so as to decrease or substantially cancel out the angle of ( $\alpha$ ) of divergence.

3. Transmitter according to claim 1 or 2, characterised in that said means for changing the source distance ( $f_1$ ) are responsive to information concerning the level of power received by a local optical receiver.

4. Transmitter according to any of claims 1-3, characterised in that said means for changing the source distance ( $f_1$ ) include one or more stepping motors and one or more worm gears.

5. Transmitter according to any of claims 1-3, characterised in that said means for changing the source distance ( $f_1$ ) include magnetic transducers or other similar devices.

6. Transmitter according to any of claims 1-5, characterised in that said at least one source of light includes a laser light source or an optical fibre termination.

7. Transceiver for FSO transmission systems, characterised in that it includes one or more transmitters according to any of claims 1-6.

8. FSO transmission system, characterised in that it includes at least two transceivers according to claim 7.

9. Method for providing, in a transmitter for Free Space Optical transmission systems, a variable-divergence laser beam, said method including the following steps: provision of at least one convergent lens having a corresponding focal point situated at a focal distance ( $f$ ) from the convergent lens along a optical axis; and provision of at least one source of light situated behind the lens for producing a beam of light carrying a signal to be transmitted on air, the source being situated at a source distance ( $f_1$ ) from the lens, characterised in that it includes the step of changing the source distance ( $f_1$ ) in order to alter the angle of divergence ( $\alpha$ ) of the beam of light in a corresponding manner.

10. Method according to claim 9, characterised in that the step of changing the source distance ( $f_1$ ) includes the step of shortening the source distance ( $f_1$ ) in order to increase the angle of divergence of the beam in a corresponding manner and the step of increasing the source distance ( $f_1$ ) in order to decrease or substantially cancel out the angle ( $\alpha$ ) of divergence.

11. Method according to claim 9 or 10, characterised in that the step of changing the source distance ( $f_1$ ) takes place in response to information concerning the level of power received from a local optical receiver.